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ABSTRACT

If American education is to turn out the independent and creative type of person we say we want, then the needs of the individual child must be identified, and teachers must be trained to perceive these needs. Teacher education programs have begun to train teachers in the use of individualized instruction methods, but there is a great need for research on the effects of such training and on the differential effects of particular teachers on particular kinds of students. Research is also needed to identify the teacher education strategies that work most effectively with each kind of teacher. An experimental program now underway in public schools in Austin, Texas, is aimed at meeting some of these research needs. A variety of tests are being used to measure different aspects of teacher behavior and student behavior. In addition, each teacher, working in cooperation with other school personnel, has selected a few children for intensive, year-long study and experimental instruction. In a continuing cycle, the teacher tailors her treatment of the child to his specific situation, observes whether the tactic works or not, then discusses it with consultants and revises it. Unlike other forms of interaction analysis, this design focuses on the teacher's specific interactions with individual children and the consequences in individual cases. (RT)

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PROMOTING SELF-DISCIPLINED LEARNING: A RESEARCHABLE REVOLUTION [1]

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Present Education; an Other-Directed System of Mass-Production

"Discipline" is usually talked about as a matter of controlling groups of students. Ostensibly, the aim is to minimize interference with student learning. Often, though, an honest look would make it clear that an over-riding aim is to minimize student behavior that disturbs the adults on the scene. In any case, most discussions of discipline talk about generalized tactics which generalized teachers can use to control generalized masses of students. There is a certain charm of economy in this approach. If one or two methods would bring about "good discipline," that would make the job a lot easier. In a constructive way, Kounin's (1970) research appears to identify just such generalized strategies which show positive effects on children's attention to the business of learning. Closer examination of such teacher-skills as "with-it-ness," to be sure, suggest that the teacher had better be alert to differential behavior by different students and rapidly make complex judgments about which student to address, in ways appropriate to that specific child's actions. Nonetheless, the logic of the approach is to seek a few, generalizable procedures for "disciplining" large groups of students.

But what is "good discipline," really? Another honored tradition in American education identifies the desirable end product as people who are self-starting, self-directing, divergent-thinking (Torrance, 1965),

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self-actualizing (Maslow, 1954): in short, self-disciplining individuals. We say this; do we believe it or do we practice it?

There is a great deal of evidence for the proposition that we do not practice it. Flanders (1969) summarized much research by saying that teachers "talk between 65 and 75 percent of the time...." and in such fashion, moreover, that what "pupils' verbal communication occurs is primarily in response to the initiative of the teacher." Gallagher (1965) observed that most pupils respond in terms of pure memory, to rather rigid patterns of teacher stimulation. Flanders concluded, "The preponderance of evidence ... would indicate that most ... teachers could adopt patterns which are more responsive to the ideas and opinions expressed by pupils and realize a gain in both positive pupil attitudes and pupil achievement." It might be added that such teaching would at least allow for children to exercise more self-initiated behavior. Given suitable, intermittant guidance by the teacher, they might learn to discipline themselves rather than be always controlled by the ever-present teacher.

In another recent study, Susskind (1969) noted, "... in this not atypical school, the children do not ask questions, while the teachers ask an incredibly large number of questions. Further, the teachers and administrators are strongly opposed to this situation in theory, but are unaware that it exists in their classrooms." He goes on to say that this is not because students don't talk at all, but because less than a tenth of all they say is question-asking. "We suspect that the negative correlation (between teacher questioning and student questioning) is due to a particular pattern of teacher question-asking, a pattern that

students do not find intellectually stimulating and gratifying. This pattern ... involves a high rate of TQ that permits no time for discussion or reflection, in which the questions are predominantly factual, right or wrong, convergent questions, relying on memory and the parroting back of the text."

Medley (1970) quotes Phillip Jackson's observation that even in a "very progressive, modern nursery school ... he found that the kids were actually free to initiate and carry through an action only five percent of the time; ninety-five percent of the youngsters' actions were essentially dictated. Now that is astounding ... I don't think a teacher could believe she was doing this."

In short, contemporary practice seems largely to treat students as passive, teacher-controlled units in an almost faceless mob. Certainly, the tiny proportion of time in which any one student can openly express thoughts or feelings of his own stringently restricts any teacher's chances of truly getting to know that student. The evidence indicates, moreover, that there is extremely little provision in our schools for the development of <u>individual initiative</u> in any way that could lead to wisely self-disciplined action, when the chance for independent action ultimately does arise.

Our mass-production system is even inefficient by its own measures of productivity. The middle class students who least need schooling, considering the high level of infectious literacy they experience at home, do graduate from high school, even from college. On the other hand, more than fifty percent of the students from the families of unskilled

and skilled workers fail to finish high school. Throughout our history, this has been the case; but we do not now retain or train these students much better than we did 100 years ago.

Ironically, the massive inertia of these educational habits even shapes the ideas and the tools of the most progressive research aimed at correcting these faults. Until Spaulding (1966) and Brophy and Good (1969), systems for analyzing classroom interaction have treated the individual teacher as one actor in the educational drama. The other actor has been the-class-as-a-whole: a mechanical summation of responses of totally anonymous students, wiping out all individual differences. Such methods for interaction analysis have valuable uses but they are of no use for finding out what the individual student is doing, let alone how the teacher's actions are affecting him. Such systems inherently continue to divert the teacher from examining what she does to the individual student or how well it works.

The Need for Personalized, Individualized Teaching

Another irony can be found in the fact that American educators have long extolled the virtues of educating the free man, in ways addressed to his unique, individual needs. There is no lack of desire or will, here. Prescott (1945), a generation ago, exemplified the child study movement as an approach to truly informed diagnosis of the individual's specific abilities, needs and readiness. Almost every undergraduate teacher-to-be in America does at least one "case study." Yet, to date, the effect on teaching practices has been so minimal as to be almost

untraceable, it appears. (No research evidence could be found which either refutes or substantiates this contention.)

One does not have to look very far to perceive the reasons for this failure to carry out a sincere and good intent. Some reasons are intensely practical: for example, expense beyond what any public agency was willing to pay until recently. In addition, the goal-behaviors, the assessment technology for measuring progress, and the precise instructional practices that produce self-disciplined learning have not been developed or empirically tested until now.

As Smith says, "It does little good for a teacher to understand that he should accept the child and build on what he is if the teacher does not know how to assess what the child brings and lacks the skills necessary to work with him. Acceptance and respect for a child as a human being, belief in his potential, and understanding of his social and emotional situation are all very good when they are expressed in appropriate teaching performances. In the abstract, they are little more than pious expressions. The experienced teacher, in search of help, in his efforts to work more effectively with children, might in justice lament, 'Show me not the end without the means.'"

Training Teachers to Maximize Student Coping Effectiveness

Fortunately, the current zeitgeist has fostered the development of most of the means for helping teachers to individualize their teaching and even to direct it toward responsible, independent thinking and action by students. The means consist of newly evolved idea systems, new methods of measurement embodying these ideas, and new techniques for educating

people in a self-checking, self-correcting way. These are briefly outlined in Figure I. (It will be seen later that the term "effective coping" may be used to summarize the elements of healthily independent initiative, judgment and action that are the goals of this proposed system.)

Figure I

The Tools for Training Teachers

Conceptual system[1]	Action	Measurement[2]
Consultant behavior aimed at facilitating teacher coping	Consultant-teacher interaction	1. Coding systems for interviews 2. Consultant's observation log
Teacher coping behavior (Goals for the teacher-educator)	Teacher-child interaction	1. Videotape codes 2. Coping measures
Child coping behavior (Goals for the teacher)	Child's individual coping attitudes and actions	1. Videotape codes (a) CASES (b) Brophy-Good Dyadic Interaction Codes 2. Coping measures 3. Teacher observations

[1] The elements in these three systems should be either specifically identical, or else logically linked in a cause-effect chain, so as to permit exact statements of relational hypotheses.

[2] The elements in these measures should similarly be identical or logically linked so as to permit precise testing of relational hypotheses.

An Action-Research Model

Using the tools now available, it is possible to mount experiments in teacher education which will identify more precisely than before what methods, in a given teacher's hands, will maximize the self-realizing, coping behavior of each individual student. (It should still be possible to group and instruct together students of similar needs and readiness. Such similarity is better achieved through empirical matching of students whose individual needs are alike, not merely by some simple, crude criterion such as age or I.Q.)

To understand a human individual it is necessary to study that individual. Applied to teaching, this means that some part of the teacher's day must be devoted to studying one or more students individually. The case study approach is scarcely new. The work of the Bank Street College is an excellent illustration of a sophisticated use of this strategy. It has been possible to find only one study, however, (Sturgis, 1958) which empirically tests the proposition that such knowledge about individual students makes a difference in teaching effectiveness. In that study, teachers of physics who were given insight into their students' personal backgrounds and characteristics produced significantly greater student gains in achievement and were rated as more effective by their students.

There is a great deal of evidence that individual differences in students make a significant difference in their response to any given method of instruction. Calvin, Hoffman and Harden (1957) found that less intelligent students did better in group problem solving situations conducted in an authoritarian manner than in groups conducted in a permissive manner. The same difference did not occur for bright students. Much

other evidence to the same effect was summarized by McKeachie (1963). The effects of training teachers to understand individual children are almost unresearched, however, let alone the differential effects of particular teachers on particular kinds of students.

The only discoverable study ever conducted which tackled the complex interaction of different teacher types with different pupil types was done by Heil and Washburne (1962). The logic of that design is being extended in the Texas study described below.

A teacher education program aimed at personalized teaching requires a conceptual system that helps teachers accurately identify (a) the needs, abilities and pressures that explain why a given child acts as he does; (b) goal-characteristics in the child's behavior, to orient the teacher's efforts and to serve as a checklist for measuring the child's progress toward more effective learning and coping behavior and (c) what the teacher is actually doing in her interaction with the student. Then there must be tools that embody these concepts, enabling teachers to become increasingly effective and autonomous in deciding what to do with a given student. These procedures include diagnostic assessment methods, observation records, cumulative case files and similar materials. In addition, there are peer rating systems and observations by other staff members which can be called upon. Well organized procedures are necessary for recording and playing back what the teacher does and how the <u>individual</u> child reacts. These may use audio tape, video tape or observer records. Finally, the teacher needs an organizational climate that supports and facilitates such teaching.

It is not just enough to put such tools in the hands of teachers, however, without testing the actual effects. A system of ideas, tools and data gathering procedures is also needed in order to plan a carefully specified teacher education program and to subject such a program to scientific assessment. A number of major research questions are at issue. One concerns the sources of variance in the teacher behavior which presumably results from the training program. This would include questions about the clarity and appropriateness of the ideas and tools the teacher is trained to use; the nature of the interaction process between the teacher educator and the teacher; and the willingness, ability and interest of different teachers to respond to the training program. (There is no reason why every teacher should be forced to undertake this kind of intensively individualized and personalized interaction with students. Subject-oriented teachers can be excellent instructors, leaving the personalization to other members of a school team.)

Another research goal consists of several sets of taxonomies which do not now exist. One would identify the personal characteristics of teachers who find it natural to use Type I instructional practice, Type II practice, etc.; and the characteristics of teachers who find it notably difficult or unacceptable to use one or another type of instructional practice. A second typology would identify the aspects of student behavior that characterize significantly different modes of effective and ineffective learning. A third taxonomy would specify different instructional practices, including differences in content and method, that demonstrably produce improved learning in students of specified types.

Still further, inductive research is needed to identify the teacher education strategies that work most effectively with each kind of teacher, for each kind of instructional practice.

In addition to these aspects of teacher training, it is necessary, where a teacher cannot personally "reach" certain children, to train her to search out and use, without feeling apologetic, other staff members, other curricular resources or other instructional media which could help the teacher to diagnose and prescribe more effectively; or, indeed, which might do the instructional job and not require further action by the teacher.

The aims of such a program can be summarized in this way:

1. To discover methods of educating teachers which will enable teacher educators, supervisors and other change agents to:

2. Modify the teacher's

    a. Perceptions of children

    b. Conceptual systems for understanding children

    c. Conceptual systems for analyzing their own teaching behavior

    d. Standards for evaluating the results of their teaching (their behavioral objectives for students)

    e. Repertoire of tactics for giving differentiated, individualized instruction to different children

    f. Methods of securing and using factual feedback from pupil responses; all with the aim of:

3. Changing pupils' behavior in the direction of more effective coping, in ways appropriate to the needs and capabilities of each child.

Research Steps in the Program

1. Measure the initial coping behavior, knowledge and attitudes of each child who is to be individually instructed. This would undoubtedly be a small number of pupils for any given teacher, at any one time.

2. Measure the initial coping behavior, knowledge and attitudes of each teacher, in terms relevant to the objectives of the program.

3. Record the teacher-child interaction process at intervals.

4. Record the selected pupils' behavior at the same intervals.

5. Record the interaction between the teacher educator and the teacher. This would consist of a series of sessions addressed to diagnosing the individual needs of the selected pupils, working out instructional tactics which the teacher will try, assessing the effects of the trial instruction, redesigning the instruction and assessing the ultimate effects of the instruction on the child's coping behavior. The effects on the teacher's preference for different instructional strategies should also be assessed.

6. Assess changes in the teacher's instructional operations, pre-to-post (e.g. nine months) (a) with the selected pupils (b) with other pupils who are both similar and different from the selected pupils, in order to ascertain the generalizing effect of the training on the teacher's instructional behavior.

7. Assess changes in the selected pupils' coping behavior, pre-to-post. Assess, also, changes in the other pupils in the same classes in order to measure the effects of the teachers' tactics on both similar and different pupils.

8. Analyze the teacher-pupil interaction data to seek regularities of relationship between teacher tactics and the amount and kinds of pupil change, for combinations of different teachers and different kinds of children.

9. Analyze the consultant-teacher interaction data to seek relationships between consultant procedures and the changes in each teacher's choice of instructional strategies with different pupils. Different effects of the same kind of consultant intervention may be found with different teachers.

Background Research

Coping Theory

Lois Murphy (1962) was the first to conduct empirical research on the coping behavior of children. She and her colleagues developed a quite detailed operational description of dimensions of coping behavior. Kroeber (1962) described coping activity, largely in intra-psychic terms. Bruner (1966) and Lazarus (1966) further discussed theoretical aspects of coping behavior, and, in the former case, reported informal observations in the school setting. Coelho and others (1969) conducted a study of the characteristics of college freshmen who survived or failed to survive in their first year. Coping behavior is variously described by these various writers but, in brief, they all appear to agree that effective coping behavior includes actively confronting problems, showing independent initiative in seeking solutions and displaying persistent effort to arrive at solutions. It is also widely held, as in Coopersmith's

work (1967) that attitudes toward the problems of everyday living are an important element in coping. Similarly, attitudes toward oneself seem to be important determiners of effective coping behavior.

In the Cross-National study (Peck, 1965) research personnel in eight countries, ranging from Japan to Brazil, Yugoslavia and the United States, have independently arrived at a generally accepted definition of coping behavior. The high degree of international agreement in this study suggests that there may be a generally valid definition of effective coping, even though there are certain differences of detail in different cultures.

Adult Influences on Child Coping

Smith (1969) observed, "Neither the theory nor the technology of classroom management and control has been worked out. Partly as a result of the failure of psychological concepts to yield practical measures, research on discipline has shifted from mere theorizing about the handling of misbehavior by inferences from psychological concepts and principles to the empirical study of teacher behavior and its effects.

"Empirical studies have revealed new dimensions of disciplinary behavior. Such behavior may exhibit different properties from moment to moment: firm, rough, clear and so on. And the effects of these properties upon pupil behavior may vary from pupil to pupil, depending upon the pupil's maturity and his relation to the conduct toward which the control techniques are directed. Pupils may react to these qualities of teacher behavior in a number of ways."

For example, Gibb and Gibb (1952) found that students who were actively involved in analyzing problems and deciding what to do about them "were

significantly superior in role flexibility and self-insight to the students taught by traditional lecture-discussion methods." Sandefur (1967) similarly found that student teachers who were trained by means of video-taped feedback to maximize their use of indirect teaching methods made their pupils significantly more alert, responsible, confident and self-initiating than were pupils of conventionally trained teachers. Similar results have also been reported by Ojemann (1962), Pankratz (1967), Filson (1957), Flanders and others (1963) and Miller (1964). Orme and Purnell (1968) found that training teachers to reinforce pupils selectively for individual compliance with pupil-set standards of classroom conduct "led to relatively stable and desirable modifications in pupil behavior."

This small number of studies is not focused, in almost any case, on the specific effects of teaching behavior on the coping behavior of individual children. There is some suggestive evidence in the literature on training for creativity. Nicholsen (1959) and Maltzman (1960) found creativity to be trainable and to be differentially influenced by different instructional tactics. Insofar as creativity may be related to independent thinking and initiative in seeking solutions to problems, this evidence may be relevant for the design of instruction aimed at producing more effective coping behavior in children.

Somewhat more distant but still related may be the findings of Coopersmith (1967) and Murphy (1962) on parental behavior associated with child coping characteristics. Murphy found that "autonomy permitted by mother" correlated significantly with such aspects of child coping behavior as sense of self-worth, resistance to discouragement, ability to mobilize

energy to meet challenge or stress, differentiation of self and others, and ability to solve problems directly. Coopersmith found that the parents of children who were high in self-esteem expected them to achieve successfully, were relatively firm and decisive in dealing with them, but also felt that their children had a right to question the thinking of their parents, to express their own points of view, and to have some say in the making of family plans.

Educational Influences on Teachers

There is extremely little in the literature by way of empirical research on the effects of specified kinds of teacher education on subsequent teacher behavior. Blumberg and Amidon (1965) found that indirect supervisors, in the eyes of the teachers they worked with, were much more productive, fostered more learning and established a more communicative atmosphere than did more directive supervisors. Blumberg (1968) subsequently found that student teacher supervisors who used indirect techniques of instruction produced appreciably more favorable effects in their student teachers.

In one of the few follow-up studies of teacher behavior after graduation, Sandefur (1969) found that teachers who had been trained in indirect methods of instruction continued to "become significantly more responsible, more understanding, more kindly, more original, more confident, more mature and integrated" during their first year on the job. A control group, without such undergraduate training, showed only a few such signs of growth during their first year on the job. The specially trained

teachers also expanded their tendencies to accept pupil feelings, to use praise and encouragement and to accept pupil ideas.

In Davis' teaching laboratory program at the Texas R & D Center, it has been found that self-administered audio-tape feedback during trial teaching made students evoke more pupil-initiated ideas and it made them more flexibly diversified in the range of instructional tactics they used. (Davis, O. L. and Smoot, B. R., 1969). Another study compared the effectiveness of trial teaching without feedback, with unguided audio-tape feedback, with guided listening to tape feedback and with non-directive supervisory feedback after listening. The supervisory consultation proved to be significantly more effective than the other training methods in getting the students to gain and increase pupil attention. Unguided, solitary listening produced no such change in teaching behavior. (Morse, K. R., Kysilka, M. L. and Davis, O. L., 1969). A third study used trial teaching of fellow-students, with guiding instructions, audio-tape feedback and peer feedback. This was compared with method which presented the questioning behavior to be learned, general group discussion and an instructional game, but which did not include the experience of trial teaching with feedback. The active, trial teaching experience proved more effective. (Morse, K. R. and Davis, O. L., 1970).

In an experimental study on the effects of personalizing the education of teachers, Fuller, Peck and others (1969) found that feedback from personal assessment data and feedback from video-taped teaching episodes, when conducted in a highly personalized, open-ended manner, led to significant improvements in the open-mindedness, self-confidence and career

dedication of student teachers. This treatment also increased their tendency to use more indirect teaching techniques, calculated to encourage more initiative and independence in their pupils.

In studies of micro-teaching, Johnston (1969) found significant changes, akin to those reported by McDonald (1968): When an experiment "cued a teacher on positive instances of the desired behavior while viewing his video-taped teaching performance (it) was a highly effective training condition....In this case, the teachers were being rewarded for rewarding students for participating in teacher-student dialogues. In the most effective treatment, teachers were also cued on those places where they might have used the desired teaching behavior. Thus, the teacher trainees were being given practice in feedback on applying a psychological concept of teaching."

By contrast with both the Texas and the Stanford methods of giving instructional feedback to teachers, Salomon and McDonald (1969) studied the effects of having student teachers watch themselves, alone, on video tape. They reported, "When no model of good teaching is presented, no guidance is given and no new and common standards are adopted, reactions to self-viewing of one's teaching performance on video tape are determined largely by the viewer's previous positions." In other words, self-confrontation without external feedback leads to little change in behavior.

In summarizing the intended aims of teacher education, Clarke (1968) cited certain "general truths" about effective teaching which it is hoped teachers will learn to apply in designing their instruction for selected children within the total class setting. He cited these principles:

"1. All behavior (including misbehavior) is caused.

2. Group forces profoundly influence individual behavior.

3. Learning involves mild anxiety but strong anxiety is disruptive.

4. Deflecting behavior impulses is better than prohibiting them.

5. Positive inducements (praise, success in work tasks, fulfilled needs, etc.) produce more predictable (and more desirable?) results than do negative deterrents.

6. Learning is more effective and retention is better in a warm, friendly atmosphere."

Smith (1969) outlined the necessary elements in a sound process for educating teachers: Establishment of the practice situation, specification of the behavior, performance of the specified behavior, feedback of information about the performance, modification of the performance in the light of the feedback, and a performance-feedback-correction-practice schedule which is continued until desirable skillfulness is achieved.

An Illustrative Study

An experimental program designed along these lines, is now under way in the R & D Center for Teacher Education in Austin, Texas. It has been applied in elementary schools and high schools serving both advantaged children and disadvantaged, ethnic-minority children. For a number of research purposes, all children and participating teachers contribute a diversified array of measures of interest, attitude and coping style at the beginning and end of the school year. Many of these measures were developed in the cross-national study of coping styles.

Six video tapes are made of each class during the year, as well. These tapes are objectively coded for teacher behavior by the FAIR and OScAR systems and another, cognitive-focused system. The tapes are coded for child coping behavior by the FAIR system, Spaulding's CASES and the Brophy-Good Dyadic Interaction system.

The crux of the method, however, is to have the teacher select a few children for intensive, year-long study and experimental instruction. All of the staff resources of the school are involved, as needed: other teachers, the principal, the counselor, the "helping teacher," the curriculum consultants. In addition, a behavioral consultant from the university part of the R & D complex works as a partner with the teacher. The object is to use the teacher's own observations, the assessment data, the video tapes and anything anyone else knows to help the teacher tune in to the capacities, the motives and the feelings of each of the children she selects for special study. In the light of such a diagnostic analysis, she then tries to tailor her treatment of the child to his specific situation. She and her consultants then observe whether her tactic works or does not work. The next stage is to discuss and revise her tactics with that child. The child is at no time aware that he is being singled out for this special attention. Most of the time in class, needless to say, the teacher is dealing with other pupils or with the class as a whole.

Obviously, no teacher could find the time to attend this intensively to every child in an elementary class of 30, or high school groups of 150. Nonetheless, as teachers learn to focus sharply on three or four children, they report that they begin to look with new insight at many

of the other children in class, in the few moments a day when they get the chance. Research is underway, of course, to measure the amount of this "radiation" effect, if it occurs.

In this program the teacher strives to select or invent learning experiences appropriate to the most urgent needs of the particular child. These experiences include selective assignment of standard instructional procedures but they also go beyond this to include the involving of other resource people, both within and outside of the school staff, when those people may have special knowledge or skill that will aid the pupil. The teacher brings to bear all her knowledge of alternative curricular materials and strategies. With the aid of the program consultants, she learns to become more clearly and accurately aware of the child's central concerns, feelings and motives so that her instructional planning is tailored to the real nature of that one child, not just a matter of hopeful guesswork and trial-and-error.

Since the teacher is helped to identify highly specific goals for the child, and since she participates in systematic observation of the effects of her tactics, she can diversify her tactics and become more flexibly responsive to the child's reactions in a very specific, well-aimed manner. This is quite the opposite of unguided eclecticism or vague "flexibility."

The properties of this training system that may be most potent are these:

(1) It takes place in the classroom, not in some far-removed workshop or university course.

(2) The child's responses follow immediately, or closely, on the teacher's actions.

(3) Instant or early feedback is available to the teacher, on the child's response.

(4) A strenuous effort is made to trace cause-and-effect very closely, from consultant input to teacher action to child response.

(5) The goal-behaviors for the individual child are closely specified by the teacher and her consultants; these are not limited to test-performance alone, but to the growth of sound, independent judgment, initiative in tackling problems and self-respecting, self-disciplined work at mastering problems.

A school where such a program is operating can be an excellent training ground for pre-service teachers, as well. Indeed, without such a live model, with room to do it oneself, it is difficult to see how a student teacher could effectively learn to perform this kind of teaching.

Research is also on foot to study exactly what kinds of consultant input lead to effective changes in teacher tactics. Tape recordings of all consultations between the consultant and the teacher are coded by a system resembling Blumberg's. In addition, each consultant maintains a detailed log of interchanges with teachers and with other members of the school staff. Research is also underway to study the effects a given teaching procedure has on different kinds of pupils, and what characteristics of teachers predispose them to use certain methods most effectively or deal with certain kinds of children best.

Needless to say, the systematic audit of the aptitude/achievement ratio, motivation and personality patterns of all the children in a school turns up a great many problems which were previously unknown, early

enough for preventive action to be taken if there is someone willing and able to take it. The help of many community agencies can be efficiently involved, as needed, when children with special needs or special problems are identified. Unlike earlier case-study experiments, this design requires the specification of teaching procedures, objective assessment of how they were carried out and measurement of their effects on child behavior. Unlike either micro-teaching or most forms of training in interaction analysis, this design focuses on the teacher's specific interactions with individual children, and the consequences in individual cases.

Empirical analysis of this complex web of data may not vindicate the expectation that a particular tactic in training teachers always has the desired effect of producing more self-initiated, self-disciplined behavior in the pupils. All general models for describing "good teaching" have the weakness that they ignore the children for whom the model does not work or the teacher who cannot or will not use the model. The design described here makes it possible to find out what method, in whose hands, produces teacher behavior that regularly produces positive effects on the coping behavior of a given kind of pupil. Eventually, a long way down the road, we may have a suitably complex map of the way to train different teachers effectively to individualize their instruction of children. It will take a very complex map, indeed, to match the complexities of the real world of the school. It will take lengthy, expensive, multivariate research to develop and validate such a map. At least, though, it is now possible to start.

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